

Serological evidence of an association between *Chlamydia pneumoniae* infection and lung cancer

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Abstract: Epidemiological evidence suggests that airway obstruction is an independent risk factor for lung cancer and that this cannot be explained by active or passive smoking alone. *Chlamydia pneumoniae* infection has been associated with chronic bronchitis and its exacerbates. Our aim was to evaluate the association between chronic *C. pneumoniae* infection and risk of lung cancer among male smokers. Smoking males with lung cancer ($n = 230$) and their age- and locality-matched controls were selected among participants of the Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study. The presence of *C. pneumoniae* infection was assessed by analyzing specific antibodies and immune complexes in 2 serum samples collected with a 3-year interval before the lung cancer diagnosis. The diagnosis of chronic infection was based on stable levels of positive specific IgA antibody (titer ≥ 16) and immune complex (titer ≥ 4). Relative risks were estimated by odds ratios (OR) adjusted for age, locality and smoking history by a conditional logistic regression model. Markers suggesting chronic *C. pneumoniae* infection were present in 52% of cases and 45% of controls and hence were positively associated with the incidence of lung cancer (OR 1.6; 95% confidence interval [CI] 1.0-2.3). The incidence was especially increased in men younger than 60 years (OR 2.9; 95% CI 1.5-5.4) but not in the older age group (OR 0.9; 95% CI 0.5-1.6). Before concluding that *C. pneumoniae* infection is a new independent risk factor for lung cancer, corroboration from other studies with larger number of cases and longer follow-up is needed.